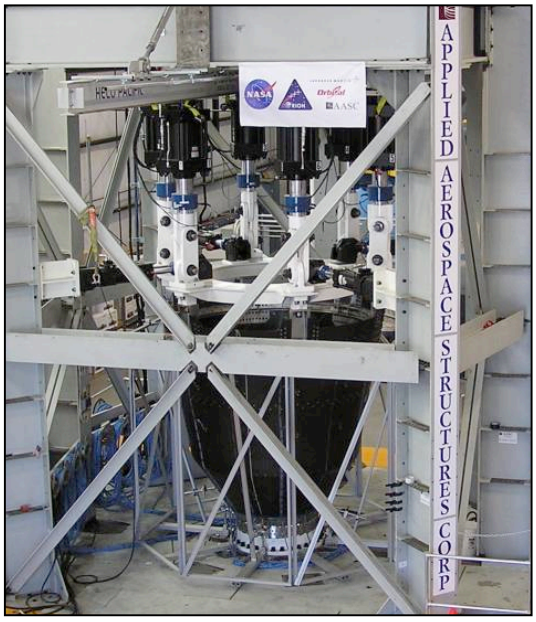
Orion Weekly Summary

Week ending June 21, 2008 **Countdown to Pad Abort-1: 173 Days**



The Pad Abort-1 composite Jettison Interstage was successfully tested to protoflight levels based on CLA-5A coupled loads (Photo top left).

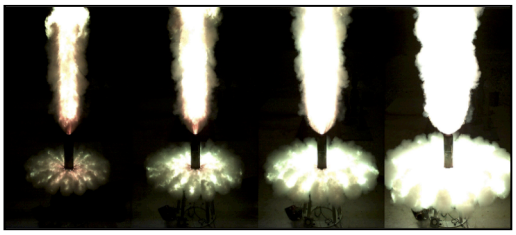
The Pad Abort-1 composite Adapter Cone was successfully tested to protoflight levels based on CLA-5A coupled loads. (Photo bottom left).

Pad Abort-1 Crew Module and SepRing:

- Pathfinder CM upper bulkhead/primary structure is complete with permanent fasteners including the hatch frame.
- Prepping for skin installation complete; skin installation started
- Completed installation of CM to SepRing R&R
- Forward Bay fittings' permanent fasteners installation complete

The LAS Assembly, Integration Table and additional ground support equipment were successfully delivered to White Sands Missile Range. These deliveries begin the official start of flight test article integration for Pad Abort-1.

The first Launch Abort System (LAS) igniter test was conducted. The test (Photo right) lasted approximately 150 milli-seconds. The igniter was just over 36 inches tall. Its purpose is to ignite the primary motor on the LAS that pulls the capsule away during a contingency on the pad or during launch.



LADDERS performed the first ILC full scale test with a 40 fps horizontal velocity with no significant damage to the airbags. This was the fourth full scale test using the second generation ILC airbags. The test was executed successfully with all pyrotechnics firing to release the test article achieving the desired impact velocity.

Crew Module Backshell Thermal Protection System (TPS) arc jet testing was conducted last week at Ames Research Center. AETB-8 tile material with TUFI/RCG coating was exposed to a range of conditions, the highest of which produced test article surface temperatures of 3000°F. These test results formed the basis for a recommendation to change the TPS material on the Lunar Crew Module lower windward Backshell panel from PICA to AETB-8; a mass reduction of 67 pounds.

Crew Parachute Assembly System successfully completed the Cluster Development Test 3 (CDT-3). CDT-3 tested a skipped reefing stage in the drogue, a two main chute deployment, and the drogue 80% reefing stage proposed for Pad Abort 1.

Low Impact Docking System (LIDS) completed all initial Dynamic test runs. Rick Gilbrech is shown inspecting LIDS hardware (Photo below).

Seat and harness testing underway at Wright Patterson Air Force Base on acceleration sled (Photos right). Input pulses of 20 G's that simulate "off-nominal" loads to the seat were applied and acceleration measurements of an instrumented dummy in an ACES suit were recorded. The seat and harness were being evaluated for proper restraint of a crew member. Testing is not complete but a preliminary look at available data shows promising results of protecting the crew from injury from these accelerations.